

Appl. No. 10/605,200
Response dated 09/13/2005
Reply to Office action of 04/13/2005

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims

1. (original): A well logging tool, comprising:
 - a housing;
 - at least one piston moveably disposed on the housing;
 - at least one sensor disposed on the at least one piston;
 - a pressure compensation system operatively coupled to the at least one piston such that a pressure at a back side of the at least one piston is substantially identical to a pressure outside the well logging tool; and
 - a piston deployment mechanism for deploying the at least one piston.
2. (original): The well logging tool of claim 1, wherein the piston deployment mechanism comprises a piston spring disposed at the back side of the at least one piston.
3. (original): The well logging tool of claim 1, wherein the pressure compensation system comprises a pressure-compensating chamber having an opening to an exterior of the housing, a fluid-filled reservoir, and a compensating piston moveably disposed between the pressure-compensating chamber and the fluid-filled reservoir such that a pressure inside the pressure-compensating chamber and a pressure inside the fluid-filled reservoir are substantially identical.

Appl. No. 10/605,200
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4. (original): The well logging tool of claim 3, further comprising a compensating spring connected to the compensating piston for exerting a force on the compensating piston.
5. (original): The well logging tool of claim 4, wherein the piston deployment mechanism comprises a piston spring disposed at the back side of the at least one piston.
6. (original): The well logging tool of claim 1, further comprising at least one piston liner moveably disposed between the housing and the at least one piston for extending a reach of the at least one piston.
7. (original): The well logging tool of claim 4, further comprising a controller connected to the compensating spring for regulating the force exerted by the compensating spring.
8. (original): The well logging tool of claim 7, wherein the controller is operated by a motor.
9. (original): The well logging tool of claim 7, wherein the controller is operated by hydraulic pressure of drilling fluids.
10. (original): A well logging tool, comprising:
 - a housing;
 - at least one piston moveably disposed on the housing;

Appl. No. 10/605,200
Response dated 09/13/2005
Reply to Office action of 04/13/2005

at least one sensor disposed on the at least one piston;
means for keeping a pressure at a back side of the at least one piston substantially identical to a pressure outside the well logging tool; and
means for deploying the at least one piston.

11. (currently amended): A method for well logging [[using a well logging tool having at least one piston disposed on a tool housing and a pressure compensating system that maintains a pressure at a back side of the at least one piston to be substantially identical to a pressure outside the well logging tool, wherein the at least one piston includes at least one sensor]], the method comprising:
disposing [[the]]a well logging tool in a borehole, the well logging tool having at least one piston carrying a sensor;
maintaining a pressure at a backside of the at least one piston substantially equal to a pressure outside of the well logging tool;
deploying the at least one piston to establish contact between the at least one piston and a wall of the borehole, and
measuring a formation property using the at least one sensor.
12. (original): The method of claim 11, wherein the deploying comprises exerting a force on the back side of the at least one piston by a spring.

Appl. No. 10/605,200
Response dated 09/13/2005
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13. (original): The method of claim 11, wherein the deploying comprises using a hydraulic pressure of a drilling fluid.

14. (original): The method of claim 11, the measuring was performed while drilling.

15. (original): The method of claim 11, wherein the at least one sensor is selected from a temperature sensor, a pressure sensor, a resistivity sensor, an inductive imager, a density sensor, a neutron sensor, a sonic sensor, a nuclear magnetic resonance sensor, a dipmeter, and a seismic sensor.